The Optical Magic Lantern Journal and Photographic Enlarger
Edited by J. Hay Taylor
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NOTICES.

The *Optical Magic Lantern Journal and Photographic Enlarger* is issued on the 1st of each month during the Lantern Season, October to March, price Two Pence, and may be obtained from all Newsvendors, Railway News Stalls, Photographic Dealers, or from the Publishers, at the following rates, post free:—

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NOTES.

As announced in our last issue (May), it is the intention of the Directors of the Magic Lantern Journal Company, Limited, to publish this Journal during each season only, instead of, as hitherto, all the year round. By this arrangement six issues will be published each season, *i.e.*, October to March, inclusive.

◆ ◆ ◆

Rhine Slides.—Mr. W. F. Slater, 5 Firs Parade, High Road, Lee, S.E., has a fine collection of slides embracing a trip up the Rhine. These, we learn, he is prepared to exhibit and describe before any photographic or other society, on payment of his travelling expenses.

◆ ◆ ◆

Lantern Explosion at Mich., U.S.A.—A day or two after our last issue went to press we received the following from a correspondent:—"While a travelling showman was giving a lantern exhibition before a large audience in the school-house at North Amber, which is about 5 miles from Ludington, Mich., a tremendous explosion occurred through the disproportionate or untimely mixing of the oxygen and hydrogen. The school itself was badly shattered, and windows were broken in the neighbouring farmhouses. Inside the school there were sad scenes, as both the showman and his assistant were mortally injured, one having his skull fractured and the other his legs broken, in addition to severe internal injuries. With the exception of a fright, none of the audience received any injury."

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The Thornton-Pickard Prize Album.—An album of the prize pictures in connection with the Thornton-Pickard competition has been issued by this firm. It contains twenty half-tone reproductions (12 by 9 inches), and will be sent to all interested for the nominal amount of sixpence.

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New Company.—The firm of Taylor, Taylor & Hobson, of Leicester, has now become Taylor, Taylor & Hobson, Limited. The capital is £20,000 in £1 shares. There is no initial public issue.

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Kodak Exhibition.—We would remind our readers that the exhibition of special photographs at the new Kodak Gallery, 40, West Strand, closes at the end of this month. The exhibition is free, and is well worth a visit. The exhibits include a large number of war pictures and panoramic photographs, in addition to a number of technical exhibits.

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Barnet Book of Photography.—The fifth edition of this interesting book has lately been issued by Elliott & Son, Limited, of Barnet. It is a valuable volume, and sells at 1s. It contains a collection of practical articles by leading photographic writers, and embraces the following subjects—Alpine photography—Negative making—Lenses—Portraiture—Pictorial photography — Architectural photography — Hand cameras—Lantern slides—Enlarging—P.O.P.—Platinotype work—Bromide paper—Carbon process and printing—together with a selection of useful formulæ.

◆ ◆ ◆

Camera Obscuras.—Business in the camera obscura line at the seaside is reported to be brisker than it has been for many years. Perhaps the public are only just beginning to appreciate this (shall we say) scientific entertainment. On a bright day it is certainly very interesting to survey the surrounding country, especially when there are many people about. One gets all the effect of a good cinematographic exhibition without the slightest trace of the flicker which is more or less common with all cinematographic film exhibitions.

◆ ◆ ◆

Nottingham Lime Cylinder Company.—In a recent issue we mentioned that this company had been resurrected and had opened a branch in London. We annex the following copy of an advertisement which appeared in a Nottingham paper of September 9th. It speaks for itself.

UNDER DISTRAINT FOR RENT.
RE THE NOTTINGHAM LIME CYLINDER CO.,
EGERTON STREET (back of Great Alfred-st. North).
SALE TO-MORROW (TUESDAY) AT 12 O'CLOCK.

MESSRS. HAYLOCK and CO. will SELL by AUCTION, upon the above premises, the PLANT of MACHINERY, FITTINGS, and FIXTURES, consisting of lathes, grindstone, benches, cylinders, half-glazed office fixture, &c., &c.

Auctioneers' Office, St. Peter's-gate, Nottingham.

◆ ◆ ◆

Photographic Exhibition Syndicate.—We are informed by the above syndicate that a Photographic Exhibition will be held at the Royal Aquarium, London, on the 16th inst. Full particulars may be obtained from the headquarters of the syndicate, Dashwood House, Old Broad Street, E.C.

◆ ◆ ◆

Röntgen Rays at Scarborough Hospital.—Mrs. Steble has presented a complete Röntgen ray apparatus to the Scarborough Hospital. This will doubtless be of great assistance to the medical staff.

◆ ◆ ◆

"British Optical Journal."—The firm of Marshall & Brookes is a most enterprising one, and their latest venture—if we may so call it—is a monthly journal in the interests of the optician, termed the *British Optical Journal*, which is edited by Mr. A. C. Brookes, who is well known as the editor of the *Photographic Dealer* and the leading member of the firm of printers and publishers. The printing of this journal is on art paper and leaves nothing to be desired; the articles are instructive and of high class, and the price is 6d. per month. We were recently favoured with an invitation to go through the printing works at Harp Alley, Farringdon Street. We saw various machines at work and asked Mr. Brookes where he kept his gas engine. He merely gave a smile and said, "As far as we are concerned that is a thing of the past—we do everything by electricity," and we were then treated to a short lecture on switching on currents, etc. As a matter of fact, everything was done (except setting type) by electricity.

◆ ◆ ◆

X Ray Tubes.—Some time ago we announced that the Röntgen Society had offered a gold medal for the best practical X ray tube. At the annual meeting of the society this was awarded to Herr C. H. F. Muller, of Hamburg. The entries were five of British make, eight American, and fifteen German. The Muller tube which was awarded the medal is to retail for 18s. 6d.

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Exhibition of the Royal Photographic Society.—The forty-sixth annual exhibition of this society will be held at the New Gallery, 121, Regent Street, London, W., from September 30th to November 2nd. On the 28th ult. a conversazione and private view was given, to which many were invited by the president and members of the council.

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Philadelphia Photographic Salon.—The exhibition of this society (fourth year) will be held from Nov. 18th to Dec. 14th at the Academy of Fine Arts, Broad St. (above Arch), Philadelphia, Penn., U.S.A.

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Photographic Salon.—The ninth annual exhibition at the Dudley Gallery, Egyptian Hall, Piccadilly, opened on the 20th ult., and will continue until November 2nd.

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Appointment.—Messrs. Newton & Co., of 3, Fleet Street, have been appointed opticians to His Majesty the King.

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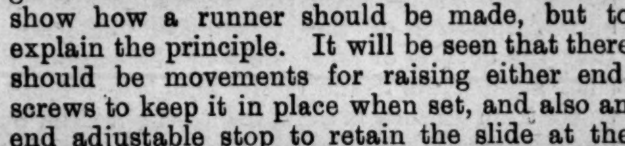
The "G.W.W." Slides.—The lantern slide department of Messrs. G. W. Wilson & Co., Ltd., has been taken over by Messrs. Wilson Brothers, whose commodious premises at Loch Head House, Aberdeen, are well suited for this growing department. We understand that the management is as before, the processes and negatives used are the same, and the working staff remains unchanged. This ensures that the high quality of the "G.W.W." slides will be maintained.

The Registration of a Lantern.

ENTERTAINMENTS of the dissolving-view class have to an extent had to take a back seat for the past few seasons, but there are signs that betoken that this once popular style of entertainment will again come strongly to the fore. Many of the slides which were considered by our forefathers as being wonderful, high-class, etc., are by the present generation looked upon as vile daubs; the result of progression in matters pertaining to art. The new era of effect slides will demand slides of the highest quality and style, and that they be presented upon the screen with unfailing exactness.

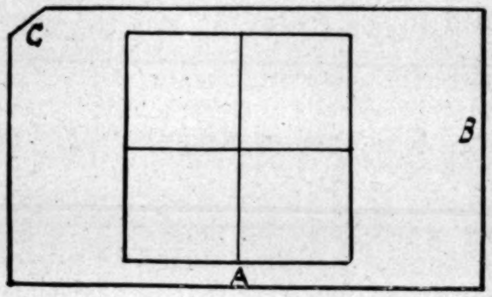
Many bi-unial and triple lanterns at present on the market stand sadly in want of registration, by which is meant that the places where the slides are inserted should all bear the same relation to the centre of (say) the condenser. In a triple the base lines upon which each slide rests should be strictly parallel, but as very few are mathematically correct, methods have to be resorted to in order to make them so. For this purpose what is termed "runners" are used. These may be of various kinds, and rest on the pillars which keep the front and back of the stage together. Means should be provided for raising either end of these runners slightly so that all the bases may be rendered absolutely parallel to each other and consequently horizontal.



Most makers of lanterns have their own particular style of runner, and as one form or other can be obtained from any dealer in lantern goods the sketch herewith is not intended to show how a runner should be made, but to explain the principle. It will be seen that there should be movements for raising either end, screws to keep it in place when set, and also an end adjustable stop to retain the slide at the correct distance. This end stop should be capable of being folded down should occasion arise.

Each stage must, therefore, be provided with a runner which will fulfil all the requirements stated; this being done, it then becomes necessary to adjust them in precisely the same relation to their condensers. This is effected by means of templates, and whether for a biunial or a triple two will be required. These templates consist of two framed slides, containing lines which in each bear precisely the same relation to the base and end of the wooden frame. Such slides may of course be purchased ready made, but as their making is no difficult matter this need give the lanternist little trouble.

A simple method of preparing templates is as follows:—Take a couple of sensitive lantern plates, and without exposing them to the light, place them in a solution of hypo for some minutes, then wash well, after which immerse in a solution of aniline dye and allow to dry. These glasses must then be firmly secured in ordinary wooden slide frames and lines scratched on the gelatine film with a carpenter's gauge. Care must be taken that the tool is operated from the bottom (A) and one end of each frame (B), they form the base line and end which is inserted in lantern. After the gauge is set for any particular line this must be ruled on both template slides before any alteration is made. The templates will now consist of two framed slides, each containing cross lines, and in order to prevent any mistake it will be well to saw off the corner of the frame furthest from where the measurements were taken, as shown at C in sketch.



In the case of a triple, light up and place one of the template slides in the middle stage and adjust the runner until the cross lines are in a suitable position on the screen, and make sure that the butting or end screw of the runner is tight against the frame of the template. Next, the bottom lantern is adjusted to the middle by inserting the other template slide and adjusting the front of the lantern and screws of the runner until the lines on this slide coincide with those of the other, as shown on the screen. This having been done, withdraw the template from the bottom lantern and use it for adjusting the top lantern in the same manner. If care has been taken in making the templates they can be interchanged in the relative lanterns, and the projected lines in all instances should coincide.

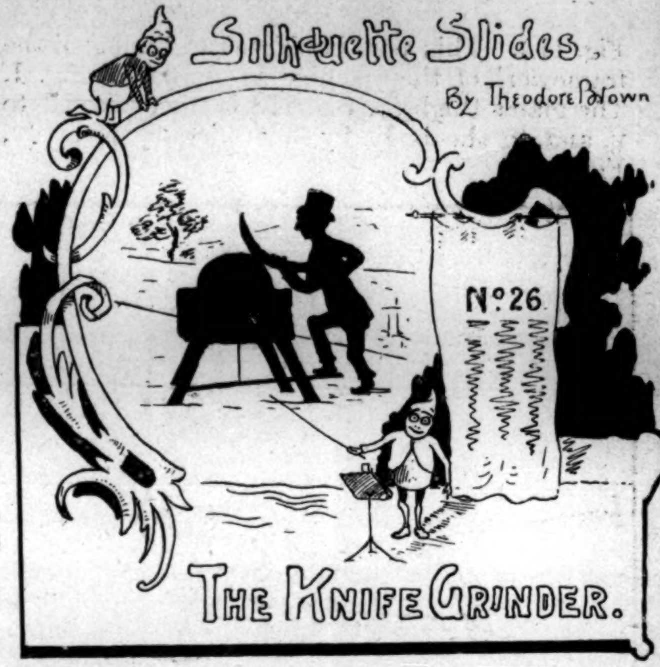
We now have our triple registered, and our stock of framed effect slides must be gone through and made to fall in their correct position on the screen; this is slow and tedious work and there is only one way of doing it. Insert the first slide and see how it looks upon the screen, and if right, well and good. Leave this slide in, and in another stage place the next slide and see how it falls in relation to the previous one. It may probably require a little piece planed off the top which of course lies on the runner, or it may require a little off the end which abuts on the screw at the far end of runner. Should by chance too much be taken off, then a thin strip of wood must be glued on. Each slide must be gone through in this manner. True it is slow work, but it is the only way by which slides can be properly registered; then when all this has been done what a pleasure it is to operate and find that everything comes up in its exact position merely by inserting the slide and pushing it home.

What is Rubber?

LANTERNISTS who have fitted up lantern apparatus with what they at first thought was india-rubber tubing and soon afterwards found as it fell to pieces that it was just so much rubbish will be interested in the following remarks by "Kuhlow":—

"To answer the question which heads our article is almost as difficult as to reply to the memorable query respecting Truth. It is one that compels those best able to deal with the subject to hesitate before committing themselves to an absolute and definite statement. To start with, the term, 'rubber,' is somewhat vague, and is one that has become attached to certain materials through long usage. As most of our readers are aware, the name was given to it from the first use it was put to in this country, viz., rubbing out lead-pencil marks, but as it was introduced from Brazil (where the natives were termed Indians), the name india-rubber at last became the familiar one, which term is as far-fetched as it is ambiguous. We need not pause here to deal with the mistakes often made by people who confound india-rubber and gutta-percha, and use the terms generally when speaking of either, but we pass on to endeavour to place before our readers some of the chief points that have to be considered in arriving at a proper definition. In considering the raw material, india-rubber, we must first explain that there are nearly 100 different descriptions of raw rubber which come on the market, and all these descriptions have a variety of grades which depend upon the purity, the state of preservation effected by the cure, the damage (if any) during transit, and a host of other circumstances; so that at hardly any time in the early history can rubber be termed absolutely pure, even before it arrives at the rubber factory. During the progress of manufacture certain colouring matters, vulcanising agents, and other substances are added for special purposes, so that, although the rubber may be as nearly pure as is possible, the article, whatever it may be, cannot be called pure rubber, because there is always a certain percentage of other matter contained therein, each of which has its own particular function to fulfil; and even as a brick-built house is not only built of bricks, but timber, mortar, iron and stone, so are **rubber goods** composed of rubber and other elements.

Again, some buyers have heard that Para rubber is the best, and insist upon their goods being made of pure Para! As we have already stated, there are many grades of Para, but while one is suitable for the manufacture of certain goods, it would not answer for another; hence the buyer must to some extent depend upon the experience of the manufacturer to supply him with material suited to the purpose. We often get consulted as to the quality of goods which were bought as so and so, but we are often compelled to smile at the ignorance of the buyer, who, with his small modicum of knowledge, has endeavoured to make what he considers a splendid bargain. It is not only among small buyers that this sort of thing exists. We know of cases where Government contracts have been placed for india-rubber goods, in the manufacture of which it is specifically stated only pure Para is to be used, while it is obvious to all who know what things should be, that it would be impossible to carry out to the letter the conditions of the contract. It is tendered for on the understanding that the conditions will not be expected to be complied with—those placing the contract knowing that they cannot enforce the conditions, and the tenderer, when he obtains the contract, simply uses what suits him best, provided that the finished article sufficiently conforms to the requirements to pass muster before the authority whose duty it is to vouch for the quality of the goods when supplied."



Silhouette Slides.

By Theodore Brown

THE KNIFE GRINDER.

KNIFE grinding is by no means an unfamiliar occupation. We are all acquainted with the gentleman who obligingly comes to our very doors with his machine to put into proper order our blunted scissors and knives. There is the well-known knife grinder who sets his machine up in a country village, to whom the rustics go with their various cutting implements. His machine is of a somewhat more substantial order and solid appearance than his itinerant brother's, as it is called upon to do much heavier work. The present slide gives a representation of him engaged in grinding a scythe. For the purposes of construction, a wooden framework of simple design and two fixed glasses are used; one being employed merely as a protective or cover glass.

The various parts of the grinder and his grinding machine are shown in Fig. II. K, the wooden framework of the machine, is glued to the inner surface of the fixed glass, upon which it is intended that the various parts should be mounted, as shown in Fig. I. The body (B, Fig. II.) of the grinder is cut out of wood, and glued to the fixed glass as shown in Fig. I.

The grindstone (F, Fig. II.) is made of wood, and is grooved as shown in the sectional drawing by its side. It is also furnished with a small projecting pin, and it is attached to the framework K by means of a screw (H, Fig. I.) upon which it is free to revolve.

The lower part of the grinder's leg and the treadle of the machine are in one piece (E, Fig. II.). This part is pivoted to the leg of the framework of the machine as shown in Fig. I. The man's thigh (D, Fig. II.) is then pivoted to E, and to the body by a stationary pivot (N, Fig. I.).

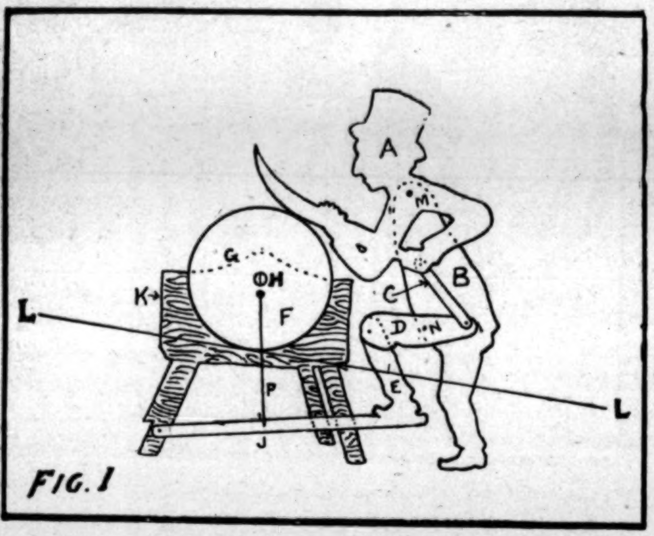


FIG. 1

The head, arms and scythe are cut out of one piece of metal (A, Fig. II.), which is pivoted to the body at M (Fig. I.).

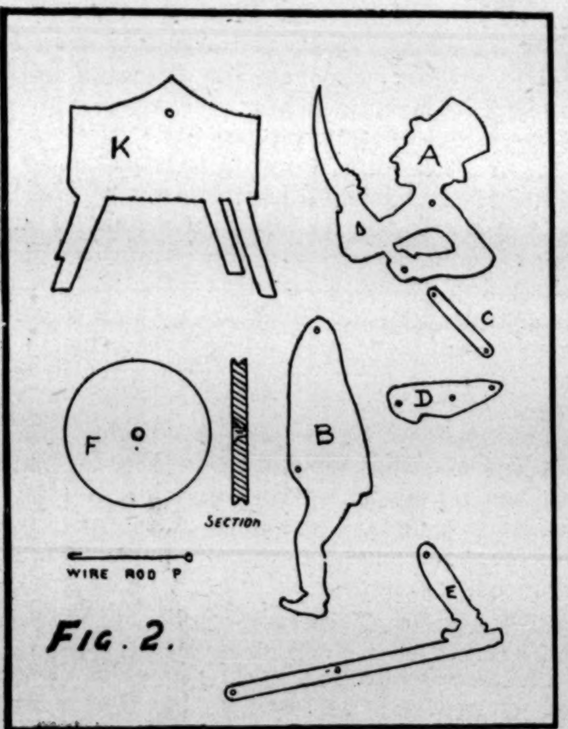


FIG. 2.

The rod C (Fig. II.) connects the head and arms to the thigh, being pivoted to both as represented in Fig. I. The wire rod P is attached to the grinding-stone by means of the fixed pin in the latter, and to the treadle in the manner shown at J (Fig. I.).

The various parts of the grinder and his machine having now been carefully fitted up, it remains to explain how they are actuated. Reference to Fig. III. must be made for this purpose. A shaft 4 cut out of thin metal, and furnished with a slot, is screwed to the framework of the slide as shown. The shaft is provided with a grooved wheel 5, to which is fixed a small handle 6. This wheel is attached to the shaft 4 by means of a special screw, having a shoulder as shown in Fig. IV. This screw is furnished with a winged nut (9, Fig. IV.). The manner in which this part of the slide is fitted together is clearly shown by Fig. V. This figure, it should be mentioned, is a sectional drawing of the shaft and wheel, the section being made through A B (Fig. III.).

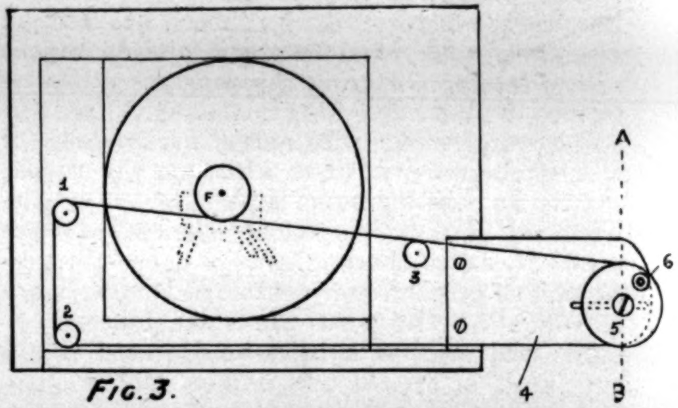


FIG. 3.

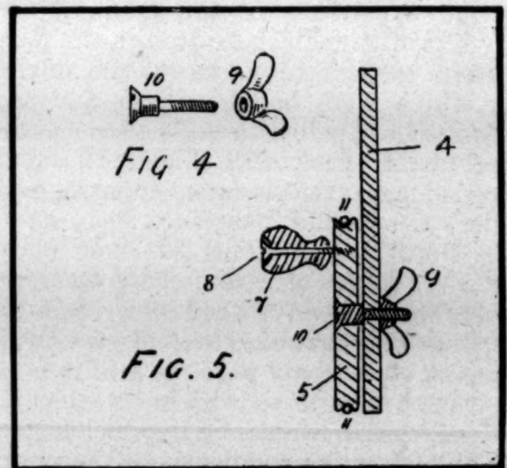


FIG 4

FIG. 5.

The object of the shoulder to the screw 10 (Fig. V.) is there explained. It leaves the wheel free to revolve on its axis (the shoulder itself) even when it is fastened, by means of the winged nut 9, to the shaft 4.

In this diagram (Fig. V.) 7 represents the handle attached to the wheel, 8 the screw by means of which it is attached, and 11 the string which passes round the groove in the wheel, as will be presently shown.

Referring to Fig. III. again, 1, 2, and 3 are small grooved wheels or pulleys, revolving on screws fastened to the framework of the slide.

A thread is now passed round the grindingstone F (Fig. 3) over the pulley 1 and 2, round the pulley 3, and round the wheel 5. The ends are then tied, and a continuous band thus formed. To tighten it the nut on the screw 10 is loosened, and the wheel 5 pushed along the slot in the shaft 4 to the necessary distance. The nut is then tightened, and the slide is ready for use. It will be observed that the thread passes in an inclined position from the pulley 1 across the glass, round the stone to the pulley 3. It thus forms the bottom of a wall or fence (the other parts of which are painted on the interior surface of the fixed glass), and its slanting direction gives the proper perspective to the wall, as shown in the heading. Any other objects, in addition to the wall or fence, may be painted on the fixed glass as desired. The fence must be so painted that the thread may be taken as a part of it, and in this way escape notice.

We will now observe the movements obtained by turning the wheel 5 in a forward or left-to-right direction.

Reference being made to Fig. I., the grindstone will revolve in an opposite direction, and the treadle, being connected to it by the wire rod P, will be pulled up and pushed down alternately. As it moves up, the end of the thigh pivoted to it will be pushed up, and the opposite end will move down. The connecting rod C will move down with it, and pull the head and arms down a little also. Then, when the stone has turned half-way round, the treadle will begin to descend—being pushed down by the wire rod—and the thigh will be pulled down with it. This will cause the rod C to be pushed up (as the thigh is pivoted in the centre to the body) and the grinder's head and arms will be pushed up also. The whole effect obtained, therefore, will be that of a knife grinder sharpening a scythe, and though it is really the revolution of the grindstone which causes the movements of the grinder and the treadle, yet, on the screen, it will appear to the audience that the grinder himself causes the revolution of the stone by the orthodox means of treadling.

THE TRAILL TAYLOR MEMORIAL LECTURE.—Prof. Sylvanus P. Thompson will give the lecture this year in memory of the late J. Traill Taylor. It will take place in one of the rooms devoted to the Royal Photographic Society's Exhibition at the New Gallery, 121, Regent Street, W., on the 23rd inst., at 8 p.m. Admission is free.

Dearth in Lanterndom.

By JAMES PARKES.

THE word has a significance of death in sound and appearance, but not so in its application; and as there is no better word to convey what is here intended, it is adopted in the hope that its weirdly drone may not be taken too seriously.

We—that is, the readers of the OPTICAL MAGIC LANTERN JOURNAL—came to the conclusion months ago, partly by compulsion it may be confessed, that there was a scarcity of interest, a barren excitement, and in consequence a scarcity of business amongst those of us who largely depend upon our talents as lecturers or entertainers generally in the arena of lanterndom, that a *dearth* for some reason or other was obstructing our paths of progression; a something was damming our hitherto unchecked rivulets of success.

Suppose we parsonise the situation and ask the reason. For it will be refreshing to feel satisfied that the seeming *dearth* is but a natural consequence in the sequence of events.

We borrow our text from the American, S. W. Foss.

When you see a man in woe,
Walk right up an' say "Hullo!"
Say "Hullo!" an' "How d'ye do?"
"How's the world a-usin' you?"
Slap the fellow on his back,
Bring yer han' down with a whack;
Waltz right up an' don't go slow,
Grin an' shake an' say "Hullo!"

Mankind could not hold out under continuous blue skies or scorching sunshine. For after a spell of fine weather comes a longing for a passing cloud and the rain that washes clean the torrid atmosphere, and when that has happened all goes on again as before, only more vigorous.

So the hum-drum drowsiness of lanterndom will presently wake from its slumber only to find itself stronger, after rest, to find further a long programme of usefulness to the front.

Glancing at the various grooves in the lantern world—and they are many—that suffers most from this want of interest, it is difficult to determine, each and all are affected alike; for if the factor can't sell his goods, the manufacturer must halt in the making-up of stock. If those who cater, in providing entertainments to suit the up-to-date tastes of audiences, are slow in procuring engagements, it cannot be expected of them to spend—as is their custom in times of success—a large percentage of the fees they ought to have been in receipt of, so it follows that one class feels the effect of the next class in its order. It would perhaps be nearer the mark to determine whether or no one branch of the tree has been thriving, and in consequence weakened its fellows. There seems to be little doubt that this is so. All have suffered for one — good for the one, but unsatisfactory generally.

Cinematography and chrono-photography are responsible for the partial decline, the dearth that has affected many. This is not a grumble, therefore nobody asks for an alteration in one of the greatest scientific achievements the world can boast of. Who is he, and where is he who honestly criticises unfavourably the splendid results from the living picture producer, though many of us regard the success of the cinematograph as the cause of a stagnation in other lantern interests?

Secretaries and managers have been and still are chary in arranging for a lecture or show unless it is to be spiced up or flavoured with living pictures, and that we can't all have them goes without saying. So to a very great extent a dearth of business is the result with a large section of the party. This is easily understood. Caterers necessarily go to the most attractive market. By the time these lines are in the hands of the reader, it is quite probable that advertisements will be found in the dailies announcing the great

National Yacht Race,

shown nightly by the American Biograph Company at the Palace Theatre.

What wonder then that Mr. Secretary Jaques, of the literary establishment in close proximity to the Palace Theatre, hesitates in treating with Professor Triple for his "Voyage round the World" show, unless Professor Triple guarantees a series of living pictures three or perhaps four times during the voyage, and as Triple cannot make such promise, Jaques ejaculates "*Au revoir.*" It is well known that hundreds of cinematograph exhibitions are given daily by as many exhibitors, who, until the introduction of the fascination, had not given the lantern business a thought, and as no special gift or talent is wanted to become efficient in the line, a reasonable capital spells success to the men possessing business tact. And as the ordinary user of the lantern lacks capital to place before the public anything so elaborate as the above, or the lecturer any inclination to mutilate his teaching by such an introduction, both have to be satisfied with fewer bookings.

Something may also be said concerning the sightseer who has been educated up to the highest pitch known in lanterndom, so that when again he is brought face to face with the ordinary series of pictures he is bored and can't stand it.

Many manufacturers, and dealers especially, have experienced a falling-off in their receipts. This, too, is partly due to the living picture branch. Films to a large extent have taken the place of slides as far as sales go, and as a large proportion of vendors do not stock these or attempt to produce them, it is feared that trade done in this way lies with a few of the big houses.

After looking for the whys and wherefores we frequently get answer, "Oh! it will be all right when the war is over." Bother the war, which has little to do with the dearth; rather let it be said that many would have been hard up for subjects for the past season or so had there been no war.

Let all lanternists throw their energies into their work, make their exhibitions as attractive as it is possible, hurry up the Coronation scenes, that by the time that excitement arrives they may be fully prepared to take their share in dispelling the fag end of any lull that might have been.

Man and Nature.

By ALBERT TRANTER.

AT the present time there is, I have every reason to think, amongst those educated persons who believe in and advocate a rationalistic religion founded on natural and mental science, a very great need for further enlightenment on their reason for belief in such a system in opposition to one of mere emotion; and in affording such enlightenment the optical lantern will be found to be a most valuable ally, and may by such use be considered as being put to its most dignified and valuable application; and in this article I will endeavour to sketch out a plan for a lecture intended to illustrate this idea or further this end. At the same time it will be well to remember that some of the ideas of the modern scientists as to the origin of, and man's relation to, the universe, are not exactly new—similar ones having been taught by such seekers after truth as Pythagoras, Aristotle, and Plato, and also by the priests of ancient Egypt, from whom the Greeks, whose names I have mentioned, probably obtained their idea; though, unfortunately for them, they were not able to verify their theories in the way that modern scientists are able to verify theirs; and in sketching out an outline for a lecture on this subject I will not trouble the reader to go so far back as the times when such pioneers of **speculative philosophy** as those named did flourish, but start with the theory of the origin of the universe as enunciated by the writer Laplace in his "Nebular Hypothesis," as embodying many of the ideas of those ancient philosophers whose names I have mentioned.

Assuming that the theory of this comparatively modern philosopher as to the gaseous origin of the earth and other heavenly bodies be correct, the other subjects to be dealt with in treating of the relation of man to such universe of gaseous origin, and also to the universe of spiritual life with which it co-exists, may be given as astronomy, chemistry, geology, paleontology, biology, embryology, philosophy as metaphysics and psychology, religion as the government of the emotions, and also such elements of man's intellectual life as art, music, and humour.

The idea to be treated in such lecture will be seen to be that of evolution or the relation of man to the material and spiritual universe.

For good renderings of this theory of the evolutionary origin of man in prose, the reader may be referred to the work of Robert Chambers entitled "Vestiges of the Natural History of Creation," and that of Professor Drummond entitled "The Ascent of Man," and for a poetical rendering of the same idea to the poem by Mathilde Blinde entitled "The Ascent of Man."

As showing the broadening of modern religious thought, it may be remarked that what Robert Chambers was afraid to put his name to forty years ago, is now taken by **thoughtful people** to be quite reasonable, and as offering the best explanation of man's presence on the earth, whilst at the same allowing of the acceptance of all the most profitable parts of that volume constituting the sacred books of the Hebrew race, and the source of that religion known as Christianity; such people considering that those books should be studied on account of their religious value, and not as dealing with what comes under the head of science or natural philosophy.

Stray Light.

By THE SHOWMAN.

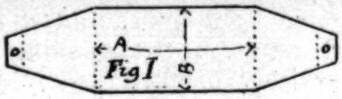
ONE of the most objectionable features at many lantern exhibitions is the stray light which may be noticed to issue from many parts of the lantern. Theoretically, no light should get into the exhibition room except that which proceeds through the objective lens, and in the old days of fountain sperm lamps this was nearly, if not quite, the case. The closed-in top, surmounted by a bent chimney, kept the light from the ceiling; the stage was light-tight, and if the back had any part removed the opening so made was almost entirely blocked up by the lamp itself, and fresh air was fed into the interior through the double bottom. Then came the modern petroleum lanterns, and in the endeavour to provide ventilation the importance of light-tightness seems to have been lost sight of. Limelight lanterns are subject to the same complaint, and the use of arc lamps has necessitated the cutting away of nearly the whole back of the body.

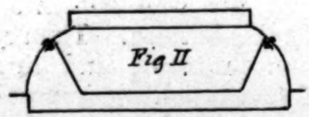
Of course, our lantern must be in every respect usable, but at the same time much may be done to mitigate the evil mentioned, and it is worth while to pay a little attention to this matter. By taking a little trouble manufacturers might greatly assist in this, but it is to be feared that the tendency is to stick to old ideas and continue on the **present lines,** so that every owner of a lantern will do well to study his particular case and set out to remedy the evil himself.

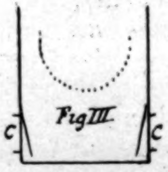
If we light up a lantern in a darkened room it will be noticed that, generally speaking, the stray light proceeds from three different places; the top, the back, and the lower parts of the sides. I am assuming that the radiant is acetylene or some form of limelight, and the lantern is of the usual Russian iron open stage type generally sold at prices ranging from fifty shillings upwards. The light from the top may be cured by fitting a baffle plate of tin in such a way as to keep direct rays from escaping while not interfering with ventilation.

It is impossible to prescribe for every individual case, but I may give an instance of the method of treating the usual "dome and oval rose top." A piece of tin is cut to the shape shown in Fig. I., the dimensions A and B being equal to the length and width respectively of the oval opening. It is bent at the dotted lines and fixed to the under side of the dome by two rivets, as shown in Fig. II. A depth of 1½ inches is ample.

By a similar simple process the light from the ventilation holes in the lower sides may be obstructed. Cut and fix two bent strips of tin as shown in Fig. III. These will not stop up the holes C, C, but will cause the entering air to flow around their lower edges before rising into the body of the lantern, and will prevent direct light from the jet from escaping. There are many ways of preventing light escaping from the back of a lantern. Perhaps the best and most usual is that of arranging a rail at the top of the back and hanging thereon a sufficiently long curtain of black cloth, velveteen, or other sufficiently opaque material. Having provided yourself with this, do not neglect to use it. I call attention to this, because I have a painful recollection of what I believe to have been an otherwise excellent picture dance being utterly spoilt by the glare from the lantern, which, being placed near the footlights, illuminated the hall throughout an arc of about ninety degrees. After the show I mentioned this point to the operator, who took evident pleasure in showing me that he had both rail and curtain at hand but had not used them.







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TITLE SLIDES.

By The Nomad

NOW that the lantern season is again opening, and we are looking up our old and putting the finishing touches to our new lecture sets, perhaps the following notes may be seasonable and useful.

The writer is one of those who believes in having good title slides to every lecture, where it is possible, and has taken great pains at times to provide them. The title slide can be made to attract and rivet the attention, and is, or ought to be, a sort of trying sample. The title slide gives the lecturer an opportunity to introduce himself and his subject, and the audience have a chance to settle comfortably before beginning to think hard. It does not always do to hurl knowledge at an audience without introduction or warning, yet many lecturers (so called) seem to plunge recklessly into the middle of their subject.

Title slides have been prepared by the writer a few minutes before the delivery of a lecture. This was managed by carrying in the "odds and ends" till of the lantern box three or four gelatine films, or a fixed lantern plate or two, a couple of cover glasses, a few masks, and a bottle of artists' black. The whole lot goes into a plate box, quarter-plate size. A steel pen can be used to draw anything on the films, but ordinary ink is almost useless. On one occasion, however, even these simple tools, except two cover glasses, were forgotten, and in default of anything better one of the glasses was carefully smoked over a candle till quite black, and a design was drawn with a needle. A mask was cut out of ordinary paper and dropped very carefully on the soot so as not to disturb it, the other cover glass put on, and the slide bound up. This work of art was actually applauded and went with the set for months, until, an accident happening to it, a proper slide was prepared.

These are of course emergency methods, but it is surprising what striking results can be obtained in a few minutes with

very little skill

in drawing; indeed, some of the rougher designs take best. When time permits, the titles are carefully thought out and generally can be made to repay the trouble taken. First draw the general form on white Bristol board with artists' black (sold in small sixpenny bottles and upwards), taking care to get as black and firm a line as possible, except where it is necessary to modify the line. Very little of this can be done, however, as the result is not so full of contrast as the first drawing. A fine camel hair brush is better for most work than a pen, though of course very fine lines should be drawn with a pen. Never draw on a very small scale, usually at least twice as large as the finished slide, and very fine detail should be avoided, a broad and striking effect being aimed at. Remember the slightest slip in the drawing shows badly in the slide. The exposure, when copying the design, should be short. When it is desired to include a landscape or portrait in the title a print may be pasted on the drawing and the whole copied, but unless the print is very full of contrast it is better to leave sufficient space for the print, or calculate so that sufficient will be left when the copy of the design is reduced to lantern size, and then copy the print separately. Of course, if the original negative of the portrait, etc., is to be had and is of a suitable size, so much labour is avoided. The latter negative or the copy of the print can now be printed, either by contact or reduction, by means of suitable masks of black paper or vignettes, on to a lantern plate, and the design negative is printed on a piece of single transfer carbon tissue, which is finally placed on the cover glass. The lettering is then in its correct position in the finished slide. With a little skill, of course, the two negatives could be printed on one plate, but the above method saves time, temper and material, as well as improving the effect. It is obvious that the tint of the lettering and design may be varied considerably by the use of different coloured tissue, and as there is of course no reason why the slide proper should be printed in black only, variety may be introduced here. The various slow lantern plates giving red tones or black have proved themselves useful for this purpose.

Hints on Slide Collecting.

By A. M. HIDDON.

AN unavoidable accompaniment of a lengthy practice in lantern work is the accumulation of quantities of slides of all sorts and conditions; some good, others bad, some still valuable, many quite out of date and valueless. Lantern slides, like most other things, depreciate, especially in the case of sets which illustrate some particular event or incident. When the interest in this kind of set once decreases, it abates and ends once and for all, and the slides, however expensive in the first place, become so much useless lumber. All this is sufficiently obvious, and the young lanternist who wishes to work economically will, before purchasing, take counsel with himself as to the chances of his obtaining suitable and sufficient return for his investment in slides, which he knows beforehand can only have a fleeting interest for the public at large.

But among the many sets the writer possesses there are certain ones of perennial interest, slides whose value increases rather than decreases, sets which are by trifling occasional expenditure easily kept up to date. Possibly inexperienced lanternists may be glad of a hint or two on the matter, and so one or two such subjects will be indicated below.

The title of one lecture set is the "Wonders of Nature and Art." Under such a wide heading almost any kind of slide, if interesting enough, can be included; they range from photos of "Niagara" to "Cholera bacillus"; the set includes "St. Peter's at Rome," Brock's benefit at the Crystal Palace," "A railway collision," and "Sunrise on the Alps." Some of the slides hardly come exactly under the title, but they all please and so serve their purpose. This winter the new "airships" and some submarines must be added, as also will anything else of special interest which may crop up. This set of slides is quite twelve years old, but is still up to date, and in frequent use.

Still older is another set, "Sea, ships and sailors," numbering now nearly

300 slides.

As fast as certain of the slides become a bit antiquated they have been replaced by newer ones, and thus, while it includes the latest types of vessel, guns, etc., it can also show the stages by which these types were reached. From such a collection of slides, a lecture set suitable for any particular kind of audience can be selected, and no matter how rapid the changes in naval matters may be, a few shillings spent on the newest slides will bring the set up to date. Here and there slides once valuable are no longer of use, but this is only the case with a few individual slides; the whole subject and the majority of slides are still of value and interest, and will, the writer hopes, remain so long after such sets as the "Paris Exhibition" and the "Transvaal War" have retired out of sight for ever.

Another set, "Animal life, great and small," maintains its original value, and has not yet been relegated to the lumber room. It is a subject capable of indefinite extension, and that is the great point in selecting a subject for lecture purposes. Of course scientific and other educational sets of slides always retain their value, though naturally they are of scant interest outside the lecture hall or schoolroom. So that if the writer may venture to give suggestions, the young lantern worker will be well advised to select subjects something similar to those mentioned above, in order to avoid the mortification later on of having on his hands sets of slides no longer useful for exhibition, and whose saleable value is nil.

An excellent permanent lecture set might be made on "Marvels of photography." It could properly include all possible sorts of slides, provided they were both good and of interest; it would permit of the very necessary humorous element being easily introduced; it could be made of distinctly artistic value. And in the word *artistic* lies the future of lantern work. The cinematograph has somewhat eclipsed the functions of the lantern of late, but there still remains a branch of optical projection in which the former apparatus cannot compete with the latter. In the projection of artistic photographical work the lantern will still hold its own; at least, such is the writer's opinion.

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Depth of Focus and Other Matters.

By T. PERKINS.

DR. MORITZ VON ROHR, in a paper read before the Photographic Convention of the United Kingdom at the Oxford meeting of the present year, by considering the angle subtended at the entrance pupil by the diameter of the disc formed on the plane focused for by the rays from a point situated before or behind this plane, arrived at certain interesting conclusions. No matter what is the focal length of the lens, assuming it to be properly corrected for curvilinear and stigmatic distortion, the resulting picture, if viewed at a certain distance differing according to the focal length of the lens, will be in absolutely true perspective. Indeed, if the negative were held at this distance from the eye situated at the position of the entrance pupil of the lens at the time the exposure was made, and between the eye and the object photographed, it would be possible to make the image formed on the negative exactly coincide with the object photographed, thus showing the truth of the perspective rendering; but if the negative or the print made from it is moved nearer to or further from the eye, then falsity is introduced into the rendering. From this it appears that there is a correct distance for viewing every picture, this distance being as a rule not very different from what is called the focal length of the lens.

Since for normal vision the minimum distance at which an object can be clearly seen is somewhere about 10 inches, it follows that no picture taken with a lens of less than about 10 inch focus is ever properly seen, unless an enlargement is made of it. Everyone is aware of the unpleasant effect of architectural subjects taken with a wide-angled lens, as it is called, that is, one of a focus short in proportion to the size of the plate used. There is no real untruth about its perspective, but in order to see the picture as a whole the eye must be placed too far off. Suppose a ½-plate negative is taken with a 4 inch lens and an enlargement made measuring 19½ by 14¼, then in order to see this picture in true perspective it should be held 12 inches from the eye—just as it would have to be held had a lens of 12 inch focus been used for the production of a negative from which the print was made direct. But no eye could at this distance see the whole picture comfortably, and so it would be removed further from it; and since the picture is viewed from a wrong distance the perspective seems false, and a wrong impression is formed of the relative size of the different objects represented. Hence we may learn never to use a lens embracing too wide an angle. But if we avoid this mistake, then it matters not at all, as far as perspective is concerned, what is the absolute focus of the lens with which the negative is taken, for if an enlarged positive is made we get exactly the same result as we should get if a **longer-focused lens** had been used; and if the picture is enlarged to such an extent that it becomes identical with one which might have been taken from the same position with a lens of not less than about 10 or 12 inch focus, then it will be possible for a normal eye to view it correctly.

There are various reasons why it is more convenient to work with a short focused lens producing small pictures than with a longer focused one producing larger pictures. Cost, weight, and size of apparatus are diminished; and, added to this, there is a further advantage which is not so generally known. The shorter the focus of the lens, the better is the definition of objects situated behind or before the plane focused for, if the two lenses are working at the same intensity.

The writer of this article, some years ago, by calculating the diameter of the "circle of confusion"—as it is called—of an out-of-focus point, arrived at results which for the sake of simplicity he will give in a numerical form. Supposing two lenses of say 6 and 12 inch focus are used on two cameras, ¼-plate and whole-plate, placed side by side; each being sharply focused for a point say 10 feet from the lens; then a point further off will be represented by a small disc which is larger on the screen of the whole-plate camera, each lens being supposed to be working at $\frac{f}{8}$, and in order to reduce it to the same size as that seen on the screen of the ¼-plate camera, the longer focused lens will have to be stopped down to $\frac{f}{32}$; but if the photograph taken with the ¼-plate camera is enlarged to whole-plate size, then the diameter of the circle of confusion will be doubled, and become larger than that shown in the whole-plate negative taken with a stop of $\frac{f}{32}$. In fact, it will be of exactly the same size as that formed when the 12 inch focused lens is stopped down to $\frac{f}{16}$ only. The absolute apertures of the two lenses would in this case be the same, and this is what is meant when it is said that whatever the focal length of the lens, stops of the same absolute aperture give the same depth of definition. It is only true when all the pictures are by enlargement of reduction brought to the same size—or, what comes to the same thing, when the pictures are viewed from the **absolutely correct** distance; these taken with a lens of half the focus being placed at half the distance from the eye at which those taken with the longer focused lens are held.

Important results follow, which must be especially borne in mind by those who make negatives with a view to produce lantern slides from them.

If we wish to print by contact, if we double the focus of the lens with which the negatives are taken, we must use $\frac{f}{32}$ instead of $\frac{f}{8}$; $\frac{f}{44}$ instead of $\frac{f}{11}$, and so on to get objects out of the plane focused for equally sharp. This means, of course, increasing the exposure 16 times. If, however, we make our slide from the ¼-plate negative by contact and the slide from the whole-plate negative taken from the same point of view by reduction, so that the two slides contain exactly the same amount of subject, then stops of $\frac{f}{8}$ and $\frac{f}{16}$, respectively, may be used; and working with the longer focused lens, we need only give four times the exposure we give with the shorter.

This conclusion exactly agrees with that arrived at by Dr. Moritz von Rohr by a different method, and stated by him in these words:—"Assuming two objectives one of half the focal length of the other, the shorter one will give in a quarter of the time a picture which by subsequent enlargement may be made congruent to that of the larger."

Hence for interiors or subjects in which a reduction of the time of exposure is important, it is well to use short focus lenses and print by contact rather than longer focused lenses and then print by reduction.

For most subjects, when printing by contact a 3 inch lens will be the best to use, as the lantern picture will seldom exceed 2¾ by 2 inches. Such a lens will possess great depth of focus as it is called, even with a large stop. A ¼-plate camera will generally be used, as at present; save in hand cameras, smaller sizes are only made to order. It will be found a considerable help in composing if a square apertured lantern mask is stuck on the focusing screen, as it will show the greatest amount of subject that can be got on the lantern slide. When a slide is produced with this lens, and projected on the screen so that it is magnified 24 diameters (3 inches converted into 6 feet), then that person among the spectators who sits at a distance of 6 feet from the screen, and straight in front of it, will see everything in correct perspective. It is impossible for all those in the room to see the projected views correctly. This is unfortunate, as the enjoyment of a lantern exhibition depends greatly upon obtaining the right position for viewing the pictures, especially when they are subjects in which perspective plays an important part.

Lanterns and Exhibitions.

By **THOMAS BYFORD.**

Odds and Ends.

IT is to be hoped that the day is not far distant when dealers in lantern apparatus will strike out from their catalogues that portion which refers to the lending out to any inexperienced person lanterns and slides for one evening at a nominal fee. Looking at it from a business point of view, it doubtless pays; but such goods in the hands of those who have no knowledge of lantern apparatus must sooner or later lead to disastrous results. When an exhibition has been given by an amateur with hired goods, the uttermost contempt for lantern shows is very much in evidence when the audience is slowly filing out of the room; and should a decent lantern show come along shortly after, it is not as a rule well patronised.

This hiring out business has brought lantern shows into bad repute, and is in some measure due to the slump in the trade. The sooner it is abolished, the better it will be for the dealers and those lanternists who depend upon it as a means of existence.

Free lantern shows, which are given during the winter season in hundreds of towns and villages by well-to-do lantern enthusiasts, are are a mistake in every way. Allowing that the well-to-do L.E. give these entertainments for the glory of the thing, would it not be more glorious still to charge a small sum, and give it to some local charity? People are always ready to patronise an entertainment when they know that their more needy neighbours will benefit thereby.

Manufacturers of lantern slides would be conferring a boon and a blessing on would-be purchasers of lantern slides were they to issue illustrated readings of each set of slides. The initial expense would be great; but imagine to what perfection it would bring the lantern business, and the impetus of trade that would be likely to follow. As an instance, a person living in a remote district writes to a dealer for a catalogue, and after perusing it he is mystified as to what the set or sets which take his fancy most are like in picture form.

The only way

open to him is to purchase them, and probably on receipt he is disappointed, and gives up his contemplated lantern work in despair. Now, were illustrated readings issued, it would be very easy for such a person to send for a few illustrated readings, and if on inspection they were not up to his standard of excellence, they could be returned and exchanged for others until suited. A well-satisfied customer would be the result, so essential in these days of keen competition. A small charge, say threepence, could be made for each illustrated reading.

It is time that lanterns of the cheap and nasty type were ousted from the market; they are dear at any price. Fancy giving an exhibition with a lantern costing 20s. No wonder they are failures, and are cast on one side with disgust. About £3 10s. or £4 should be the uniform price for a good class Russian iron lantern. This price would permit of each lantern being thoroughly tested before being offered for sale.

There is a snug little fortune waiting for the person who will give us a good lantern illuminant without being considered dangerous. The illuminants at present used are not depreciated in any way, but it is hard to make some people believe that the numerous gases employed are as safe as the Bank of England. They will not have it at any price. No matter how simple the folk, they always look with favour on paraffin oil. The reason is plain—they use it themselves, and what they use with safety must, they think, be safe in the hands of others. The present form of paraffin lamp, though excellent as an illuminant, is too cumbersome; and a lamp in a more modified form with a greater power of light is the thing required.

It is more than a pity that plain photo slides, possessing at times everything that is beautiful, should be converted into what dealers are pleased to term coloured slides. Some of the daubs which are foisted on the public at an extra charge of sixpence deserve to be crushed up and used in the manufacture of glass paper; they would by this means serve a more useful purpose. Yet, in many instances, it is suggestive of the colouring being done by pouring it on from a jug. Manufacturers tell us that there is a greater demand for this cheap stuff than for the better kind. Possibly there is, but had such stuff not been introduced, the lantern business would to-day be looked upon as a beautiful and artistic business. "What is worth doing at all is worth doing well," and no greater proof is wanting as to the truth of this maxim than the modern monthly magazines. The first number of its kind—*The Strand*—was a beautiful specimen of man's handicraft, and each succeeding number has been better than the preceding one. Therein lies the keynote of success. Strive to improve, and success is assured.

It has puzzled the wisest of men why a lecture set should consist of

fifty or more slides,

but perhaps it has not occurred to those who are responsible for the introduction of these sets, that a lecture on "Human Physiology" or "Astronomy," consisting of fifty slides with a long dreary lecture thrown in, is little short of idiocy when children and simple working people constitute the audience. There should not be more than twelve slides to each set. The lectures should be to the point, and consist of not more than 100 words to each slide. People would be more interested, a greater variety could be introduced into the evening's entertainment, and snoring and yawning on the part of the audience would be a thing of the past.

Itinerant circuses have for several seasons now made the cinematograph a part of their show. Therefore, people living in remote districts have had opportunities of witnessing it in its various forms; but it will never be popular in villages, for the simple reason that dumb shows are considered imperfect. In the music halls of the large towns it is appreciated, because there are other varieties or turns introduced which kills the sameness. Possibly this has occurred to others, which accounts for its absence from villages.

The last cinematograph show the writer witnessed was in a small town in the Eastern Counties one evening last winter, it was given in conjunction with a phonograph. The night was bitterly cold and the audience scanty, scarcely fifty people being present. The cinematograph show was poor, the flickering being painful to witness, and the phonograph—well, the least said about it the better. The records were nearly used up, and yet the operator had the audacity to tell those present that the heat in the room had unfortunately melted the wax. This remark created some amusement, considering that the majority of those present were shivering with cold.

Shortly after another showman came along with a limelight lantern show dealing with the war in South Africa, he was booked for two nights. The first night's audience was a very poor one, possibly the recent visit of the cinematograph man had something to do with it, but the lantern and slides were everything that could be desired, and the **splendid description** given by the lecturer quite carried the audience away, and he was rewarded with an overflowing house the following night.

If one is touting for schools, and should arrive in a village about dinner time, do not interview those who have the letting of the room before dinner, or when partaking of it. A person is much more reasonable to his fellow creatures when the inner man has been satisfied.

It is quite as easy to give a lantern exhibition in the summer as in the winter; the windows are easily darkened with two thicknesses of brown paper. In some rural districts splendid audiences are the rule in the height of summer. Outdoor lantern shows in the summer are in some districts very popular at school treats, the flank wall of a whitewashed house does duty for the screen. It is quite a novel sight to see several hundred people in the twilight of a still summer's night witnessing an exhibition of this kind. Those who have always dwelt in cities have not the faintest idea of the glories of a country life.

When a lanternist visits a village new to him he should ask the schoolmaster if there are any good class people living there, if so interview them and ask for their patronage at the show; at the same time remark in a quiet sort of way how pleased the children would be were some benevolent person to pay their admission money. Don't jump at it quickly, gently does it. Your lady and gentleman born will understand and think well of you for suggesting it. There is nothing wrong in acting thus, it is simply a matter of business, and it is nice to know that if you did strain a point it was the means of making a number of little children happy.

It may seem rather strange to the uninitiated that small remote villages are financially speaking good. Lanternists usually fight shy of them thinking they are useless, but should anyone wander away from the beaten track to these places they will find themselves amply repaid.

Should one be engaged to give an exhibition to school children as a wind-up to a treat, suggest that a little singing by the scholars at intervals would make the entertainment more attractive and interesting.

Observations on Printing.

By E. DUNMORE.

THERE is perhaps nothing of more importance in photographic practice than printing the negative, which is the actual visible demonstration of the results obtained by the use of choice lenses and apparatus, which are neither more or less than tools to aid us in making a positive print. The undue importance attached to lens, camera, and plate, has gained for photography the discredit of being a merely mechanical process. A painter might with equal justice eulogise his brushes as producing a notable work of art; the only difference being that in one case the tools are simple, and in the other complicated. But they are all tools, nevertheless—a means to an end, and our endeavour should be to make the end equal to the means, and more so. A negative is worth nothing of itself, and those who take negatives and never print them simply waste their time and money over a useless fad.

We always examine a negative in order to judge how it will print, well or badly. We thus involuntarily look to its ultimate use whether that is to be attained or not, for negatives are invariably estimated by their positive producing capacity.

A negative of average quality will make either a good or a bad print, according to the skill shown in printing. The best negative ever taken may make either a bad or a good impression, according to the manner in which it is treated. A thoroughly good negative, thoroughly well printed, is something to be proud of technically and artistically. But to make the best of a negative requires considerable skill and judgment. The depth of the printing, the colour of the print, the quality of the surface, and the general treatment so as to emphasise the good points and minimise the bad ones, requires something more than merely exposing the negative and paper to the light, toning and fixing, which seems to be the usual style of making a photographic print.

The negative itself is an important factor frequently overlooked in determining the colour of the print. The harder and clearer the negative, the better the colour; the flatter and thinner, the worse the colour. Of course, there are other qualities of more importance than the colour alone in a good photograph. Still, it is as well to bear in mind that the negative itself very considerably influences the colour of the print, quite independent of toning.

The colour

is not the only one thing dependent on the quality of the negative, but permanency goes hand-in-hand with it, and a negative that will make the brightest prints will also make the most permanent ones. Prints made from the usual flimsy negatives of the present day can only have a comparatively short life, that is, when made on printing-out papers. Of course, with development other conditions obtain, and a negative utterly useless for printing-out will do well for a development process, and be satisfactory in most respects.

A very great proportion of those who take photographs have but a hazy idea of what a good print should be, as it is only by comparison that the more refined points of a photograph can be really estimated, and that comparison is not always readily available. Inspect the best work of any of our leading men, and compare it with the usual work turned out by the multitude. Setting aside the composition and artistic qualities of the negatives, the technique of the printing will be high; richness of colour, whether warm or cold-sparkle and half-tone, will be found throughout the work—in fact, all those qualities that go to make a good print. Let it be borne in mind no secret process is used; the same materials are available for all. The only thing is skill in their use.

Now, with regard to the paper used. That a ready-sensitised paper, whether gelatine or albumen, deteriorates with age is well known to most photographers; but that the actual deterioration takes place before any visible change is noticeable is perhaps not so generally known. Deteriorated paper when put into use will be found to tone very much more slowly, and have less pure high lights than if the paper was of recent preparation. The finished print is also more liable to discolour, although apparently right when first made; getting dirty looking in the lights and flatter in the shadows. All ready-sensitised papers suffer this change. In course of time they vary very much in their behaviour. Albumen paper that has been sensitised in a plain nitrate of silver bath will rapidly change in a damp warm atmosphere, and become quite yellow; yet in the process of toning and fixing regain its

pristine whiteness.

Whereas, a gelatine emulsion paper not nearly so yellow will refuse to clear up. It seems that all albumen papers, whether ready-sensitised or not, lose their yellowness very much more readily than those prepared with gelatine, and also tone more easily after keeping than gelatine does.

As I have already observed, a change noticed by the tardy toning in long kept paper before discolouration sets in indicates that such prints have a doubtful permanency, and no important work should be made on such. It is within the knowledge of most photographers that sometimes a few prints out of a batch will tone much more slowly than the rest, or not tone at all in any reasonable time. The explanation is that those pieces have in all probability undergone some change before printing of a character similar to that of long kept paper. It unfortunately happens that there is no indication of the change before putting the paper into use, when it is too late to remedy it. It goes without saying, if a gelatine paper be discoloured it is not suitable for the best work; whereas a slight discolouration on albumen paper makes no perceptible difference in the result. Age and discolouration are two distinctly different conditions, and must not be confounded as producing the same faults; but the fresher the paper the better, providing the baths are in good condition. Freshly prepared paper, either albumen or gelatine, tones readily and gives very little trouble, bright clear prints being the rule. As the paper ages so do troubles increase. A slightly alkaline bath of carbonate of soda, if given before toning and well washed out afterwards, seems to improve matters.

Many plans have been suggested for reducing over-printed proofs. Most of them, although reducing the depth of the print, at the same time spoil its colour. The most successful way I have tried is to immerse the fixed and washed prints in a weak solution of ferridcyanide of potassium and hypo, and thoroughly well washing afterwards. The action of this bath must be stopped before the reduction is sufficient, as they go on reducing after removal from the bath; and this is where the difficulty comes in. Only actual experiment will show how far the reducing action is to be continued, but having just hit on the right effect, the colour of the print will remain much as at first, and after a most thorough washing and soaking, no further change need be anticipated.

Combined Bath for Toning and Fixing Lantern Slides.

(One Operation.)

THE following method of combined toning and fixing is not new as far as concerns paper prints, having been used nearly a half century ago for that purpose, but recently I, says the Editor of *The Camera*, U.S.A., made use of it for obtaining a warm tone on lantern slides and window transparencies, and found it quite pleasing, and at the same time economical both as regards material and time.

The slides, after proper development, are washed free from all developer and then rinsed with acidulated water so as to remove any trace of alkali, which would interfere with the process.

Make a bath as follows:—

Strong solution of ferric-chloride	6 fl. ounces

(Use the solid salt, not the medicinal tincture of perchloride of iron for sale at the pharmacists.)

Hypo	4 ounces
Water	8 „
Nitrate Silver	30 grains

Dissolve the hypo in 7 ounces of the water, the silver in the other remaining ounce, then pour the iron (ferri-chloride) into the solution of hypo by degrees, stirring all the time. The addition of the iron salt strikes a fine purple colour, but this soon disappears. When the liquid becomes colourless again, which it does in a few minutes, add the silver nitrate, stirring briskly. Perfect solution takes place without formation of a sulphide (black deposit). Keep twelve hours before using; it improves, however, by longer keeping. This solution is acid in reaction and sometimes milky from deposition of sulphite. This is inactive but had better be filtered out.

The slide, after washing from developer and made slightly acid by immersion in weak hydrochloric acid (1–100), is placed in the above bath and allowed to remain until operation is complete.

The slide so treated possesses a very pleasing brown or sepia tone, caused by the modifying action of the free silver upon the hyposulphite of silver in the bath. Wash well after the operation. The same method may be applied to aristo or printing out papers, and is certainly very cheap.

Wants—How to Meet Them.

By **GEO. KILBURN.**

THE wants of most lanternists and photographers are never altogether satisfied, for no sooner has one want been supplied, than something else is deemed indispensable, and must be obtained to satisfy the longing want. The craving for something new has a far greater hold on some persons than is generally supposed. Coming into contact with lanternists and photographers, I find the desire for something new to be almost contagious. Dissatisfaction with apparatus, plates, papers, and developing compounds seems to be almost universal amongst users of them. We all seem to be tainted more or less.

Some time ago, when out on a photographic excursion, I was asked to photograph a gentleman's residence. The camera was fixed up on the lawn in front of the house, and I soon discovered that it could not be taken with the lens and the very limited space in front; so it had to be left over until another day when I could come better equipped.

Not having a short focus lens, or what is better known as a wide angle lens, and money being somewhat limited, I had to put on my studying cap, as some people say. My knowledge of optics theoretically is not very great, so I had resort to a little practice to try to overcome the difficulty which had presented itself before me. Having read that "Necessity is the Mother of Invention," the idea occurred to me how it might be overcome. The plan I adopted proved to be a complete success, which consisted in removing the back lens of an "Optimus" 5 by 4 lens, and inserting in its place a 5 inch single lens by Horne and Thornthwaite. By combining these two lenses, I got a lens of about 3¾ inches focus, which enabled me to take the place mentioned, as well as a number of other public buildings which I was required to show at a series of lantern entertainments. I have not tried to ring any further changes with my lenses, but I have no doubt but what I could do so if necessity required.

Perhaps the above hint may prove as useful to some reader of this journal as it did to the writer, who may have occasion to require a lens of shorter focus, but does not wish to go to any further outlay in that direction.

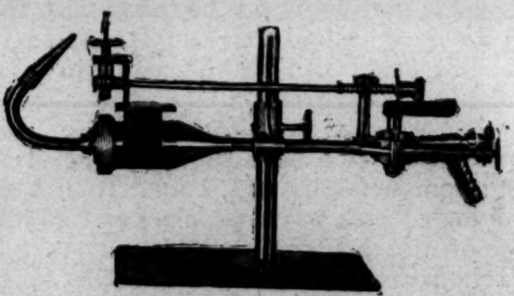
NEW APPARATUS.

RILEY BROS., LIMITED.

Messrs. Riley Bros., Limited, who practically control the hiring out of lanterns and slides in many of the Midland Counties, are well to the fore with new sets of slides. In addition to their lantern department, they have now departments for hot air vapour bath cabinets, bicycles, and sewing machines. We should not be surprised if motor cars found a department in their extensive business before long.

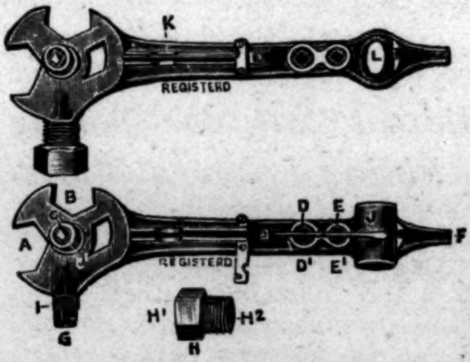
GWYER JETS, ETC.

Two new types of the Gwyer jets are being placed on the market this season by the manufacturers, Messrs. J. S. Willway & Sons. The No. 2 jet has been entirely remodelled, so as to especially adapt it for cinematographs; and to obviate all difficulty on the score of vibration, the jet is now secured by means of a side clip to a substantial pillar, which is rivetted into a thick base plate in the style shown in the illustration. The Pendant saturator, by the same firm, has also been remodelled, so as to make it more adaptable to the strong illumination required when exhibiting cinematographic pictures. The No. 1 jet is a favourite for ordinary slide projection.



B.P. UNIVERSAL COMBINATION KEY.

Some time ago the Scotch and Irish Oxygen Co., Limited, announced the advent of their new Universal Combination Key, but it appears that they have only just been able to supply same, as the stampers disappointed them with delivery. However, a large stock is now on hand, and orders can be promptly executed.



The key, as stated in a previous number of this Journal, is provided with sizes for all makes of cylinder gland nuts, various size spindles, screwdriver, hammer, adapter union, lime borer, wing nut lever, &c. The above illustration shows its style.

DREADNAUGHT GENERATOR.

Mr. Wm. Tylar, of Birmingham, finds he has a good thing in this generator (a description of which was given in our June issue for last year); they are now in general use and most dealers keep them in stock. With this generator the carbide must be granulated, and is caused to fall in to the water as required—and in this country there is no difficulty in obtaining a supply. In Ireland, however, things are different, so Mr. Tylar ships carbide and generators in bulk to Mr. Laphen, 37, Mary Street, Dublin, who supplies both wholesale dealers and retail buyers.

WARWICK CINEMATOGRAPH FILMS.

Day by day the stock of new film subjects is added to by the Warwick Trading Company, Limited. Some of their latest include scenes in Switzerland, some new and startling effects termed Eagle's wing panoramas of Grindelwald, Wetterhorn, an ascent of the Jungfrau, etc.

"WRITEIT" BOTTLES.

Those who have been troubled by labels coming off their bottles will hail with delight the new bottles manufactured by Messrs. Griffin, of Sardinia Street, W.C. One of the features of this bottle is that a space on the side has been submitted to the sand blast, whereby it is rendered as ground glass, upon which any label can be written in pencil; this can, of course, be easily removed should the bottle be required for other contents. Another feature is that the stopper is provided with a flange portion, which serves to keep dust from the immediate mouth of the bottle. These bottles are made with both wide and narrow mouths.

B.P. SERIES OF STEREOSCOPIC VIEWS.

A set of twelve stereoscopic views has been received from Mr. W. Tylar, of Birmingham. These comprise a series of views in South Africa pertaining to the seat of war. Some 22 different sets, each of twelve slides, are issued by this firm at 1s. 8d. per set.

PATENT INTELLIGENCE.

Compiled expressly for this Journal by Messrs. W. P. Thompson & Co., Chartered Patent Agents, 322, High Holborn, London, W.C., and at Liverpool and Birmingham, to whom all enquiries should be addressed.

No. RECENT PATENT APPLICATIONS.

8918. 30th April, 1901. Samuel Henry Crocker. Improvement in producing moving pictures.

9291. 4th May, 1901. Augustus Rosenberg. Improvements in the production of cinematic pictures, and in apparatus for viewing the same.

9714. 10th May, 1901. Walter Wilkinson. Improvements in exhibiting animated pictures and films and apparatus therefor.

9879. 13th May, 1901. Elias Bernard Koopman, London. Improvements in or applicable to apparatus for viewing living pictures or animated photographs, and the like.

10361. 18th May, 1901. Walter Pelham Warren, London. Improved method and apparatus for projecting a visible image of opaque objects.

10695. 23rd May, 1901. Claude Grivolas, fils. Improvements in and relating to cinematographs.

11047. 29th May, 1901. Ernest Thomas Saunders. An improved method of, and apparatus for the projection of animated photographs on to a screen.

12351. 18th June, 1901. Carl Wagner, London. Photographic printing apparatus especially suitable for kinematic photography.

12635. 20th June, 1901. Paul Francois Landais, London. Improvements in apparatus for displaying what are known as animated pictures.

14136. 11th July, 1901. Herbert Fox Standing, London. An improved method of and means for obtaining optical effects.

14156. 11th July, 1901. The Electrical Lumiscriptor Company, Limited, and Walter Clay Poole, London. Improvements in or connected with apparatus for optical projection for luminous advertising and other purposes. (Complete.)

16191. 13th August, 1901. Ulrich Diem, London. Improvements in kaleidoscopes. (Date applied for under Patents, etc., Act, 1883, Sec. 103, 14th February, 1901, being date of application in Switzerland.)

16770. 20th August, 1901. Leo Paul Wood and William Edward Wood, Manchester. Improvements applicable to kinematograph and like machines.

17267. 28th August, 1901. James Osborn Spong, London. Improved apparatus for producing and exhibiting kaleidoscopic effects or designs, applicable also for advertising and other uses.

17979. 9th September, 1901. Josiah Clement Chandler and Samuel Briscoe Chandler, London. Improvements in connection with animated pictures.

18015. 9th September, 1901. Henry Harris Lake, London. (La Société L. Gaumont et Compagnie, France.) An improved device for synchronously operating a phonograph and a cinematograph.

18324. 13th September, 1901. John Alfred Prestwich, London. Improved means of exhibiting kinematographic photographs.

Copies of any of these specifications may be obtained of Messrs. W. P. Thompson & Co., Chartered Patent Agents, 322, High Holborn, London, W.C., and at Liverpool and Birmingham, price, post free, 1s. in stamps.

SPECIFICATIONS PUBLISHED.

7668 of 1900. Prestwich. Kinematographic apparatus.

7684 of 1900. Bünzli. Means for exhibiting animated series of stereoscopic or other views.

12820 of 1900. Hatton and Whitehead. Apparatus for taking and viewing or exhibiting cinematograph pictures.

15226 of 1900. Prestwich. Kinematographic apparatus.

13883 of 1900. Friese Greene. Kinetoscopic or cinematographic apparatus.

18364 of 1900. Rosenberg. Cinematographic apparatus

14499 of 1901. Handy. Means for the production of stage illusions.

21545. Gaumont. Cinematographs.

Correspondence.

INTERESTING SUBJECTS FOR LANTERN SLIDES.

To the Editor.

DEAR SIR,—Among the many good suggestions as to subjects for lantern slides that have appeared from time to time in your valuable journal, I do not recollect ever seeing the following:—

I. Representations of subjects of places, connected with which exist curious local traditions or legends. For example:—

1. Brent Pelham Church, Hertfordshire, where Sir Piers O. Shonks lies buried in the wall; a remarkable tradition exists of this.
2. The stable at Stevenage, where the coffin of old Mr. Trigg is fixed on the rafters.
3. The tomb at Tewin with the trees growing through it.

II. Photographs of remarkable trees, etc. For instance:—

1. The trees growing inside the Church at Ross.
2. The tree somewhere near Stamford, inside of which there is a large summer-house.
3. A tree near Waltham with a summer-house in the branches; and so on.

There are many others equally curious.

III. Photographs of curious and interesting relics; such as the scold's bridle in a church in Oxfordshire, or a ducking stool, etc., etc.

Such subjects as the above would surprise many people, as well as be of much interest in the matter of education.

I use a good many slides from my own photographs of local curious objects, and find them, when briefly described, well appreciated by Colonial audiences.

I am, etc,

Nelson, N.Z. ROBT. J. KINGSLEY.

REPORTS OF LANTERN EXHIBITIONS.

To the Editor.

DEAR SIR,—I have often been amused at the manner in which some of the provincial papers report lantern exhibitions and lectures. We often read that "a fine assortment of pictures were thrown on the sheet," etc. One would be inclined to expect this sort of expression were the reporter dealing with the subject of rotten eggs instead of pictures projected by scientific means. When reading in one of our local papers only a fortnight ago about an entertainment given to the children of Great Haywood St. John Baptist Day and Sunday schools, the report, after explaining that a gramophone was exhibited to the delight of the hearers, summed up the lantern exhibition which was given immediately afterwards in the following words:—"As a wind-up, a magic lantern was exhibited, which, as is natural, gave unbounded pleasure to all." Perhaps the Great Haywood reporter to the *Stafford Advertiser* of September 7th may take a hint in this matter, and that in his future reports we shall learn that it is not the lantern itself which is exhibited, but that by its aid pictures are projected upon the screen.—Yours truly,

AN AMATEUR LANTERNIST.

Stafford.

Notes and Queries.

R. W. J. Leicester.—Slides by York or Newton, of London, and Wilson, of Aberdeen, can always be relied on.

H. Luscombe Toms.—We will keep your matter before us.

H. L. Bennett.—To supply all the information required would entail too much writing, but if you will get "Optical Projection," by Lewis Wright, you will find all the information you require. The book is published by Longmans, Green & Co., London. You can, however, purchase it from Messrs. Newton & Co., 3, Fleet Street, London.

C. von Eiff.—We cannot at present think of any maker in France. *Re* the glass, write to Houghton & Son, 88, High Holborn, London.

Edgar Oates.—We have seen the vapour light (a French invention) sold by Messrs. Walker, Turner & Dawson. It is good of its kind, but for giving an exhibition of cinematographic views it is worthless.

Alex. R. Hogg.—We are sorry we cannot give you the address of the makers of the Luminiscriptor. Better address the firm at the Glasgow Exhibition.

H. L. Bennett.—We shall keep the matter before us.

Evan Maclean.—For details and prices of machine enquired about, write to Mr. Walter Gibbons, 60, Chandos Street, Strand, W.C.

G. E. S.—For particulars as to rendering your screen opaque, yet pliable, we must refer you to this Journal for July, 1900. The details are too long to print here.

Bert Henderson.—To speak plainly, we do not consider the want of success so much to the route taken, as to the want of ability on the part of the advance agent, whose duty it is to secure halls, and properly bill the town. You will find hints in this issue.

W.—Before placing the ingredients in the oxygen retort, it might be well under the circumstances to place a small quantity in a test tube, and watch the effect when it is placed in a flame.

Inventor.—We fear your claims for a patent would be very slight; rotating lantern bodies have been made for many years by Newton & Co., of Fleet Street.

J. Kebbell.—We cannot enter into the matter, but must refer you to our back numbers, where you will find a vast amount of information upon the subject of ether saturators. To answer all your questions fully would occupy at least half a dozen pages of this Journal. If you like to ask one or two definite questions, we shall be pleased to assist you. We have gone carefully over your long letter, and find that at least a hundred questions are asked.

Several articles have been held over until next issue for want of space.